CLAIM AMENDMENTS

Claims 1-13. (canceled)

Claim 14. (original) A method for performing an electrophoretic process on a microfluidic device comprising a first, second, third, fourth and fifth reservoir and a first channel extending from the first reservoir to the fifth reservoir, said device further comprising a second channel, third channel, and fourth channel and said second channel, third channel and fourth channel being in fluid communication with said first channel at respectively second-channel, third-channel, and fourth-channel intersections and each of said intersections being spaced along said first channel such that, relative to said first reservoir, said second-channel intersection is proximal to the third-channel intersection and the third-channel intersection is proximal to the fourth-channel intersection and the fourth-channel intersection is proximal to the fifth reservoir, and each of said second, third and fourth channels being in fluid communication with the second, third and fourth reservoirs respectively such that materials may be added amd removed to the channels via the reservoirs, said method comprising:

applying a first voltage difference between the second reservoir and the third reservoir to move a sample from the second reservoir, into a sample region along the first channel and between the second-channel intersection and the third-channel intersection;

applying a second voltage difference between the first reservoir and the second reservoir to drive a terminating electrolyte from the first reservoir towards the sample in said sample region;

applying a third voltage difference between the first reservoir and the fifth reservoir to stack components of the sample between the terminating electrolyte and a leading electrolyte;

automatically applying a fourth voltage difference between the fourth reservoir and the fifth reservoir when the last component of the stacked sample reaches the fourth-channel intersection such that the components of the sample spatially separate while migrating along the first channel towards the fifth reservoir.

Claim 15. (original) The method of claim 14 wherein an electrode is positioned in each of the reservoirs.

Claim 16. (original) The method of claim 15 wherein at least one electrode is floated.

Claim 17. (original) The method of claim 15 wherein all electrodes are simultaneously activated.

Claim 18. (currently amended) A system comprising the device as recited in claim 14 and a controller configured to apply voltage differentials as recited ~~in claim 14~~ therein.

Claim 19. (currently amended) ~~A~~ The system ~~comprising said controller~~ of ~~said~~ claim 18 ~~and~~ further comprising a detector adapted to sense when said sample reaches a location on ~~the~~ said device.

Claim 20. (original) The system of claim 19 wherein said location is said fourth-channel intersection.

Claim 21. (original) The system of claim 19 wherein said detector is an optical detector.

Claim 22. (currently amended) A method for separating a plurality of components of a sample in a microfluidic device having a stacking channel and a separation channel downstream of said stacking channel, said method comprising:

applying a first electric field to concentrate the components between a trailing electrolyte and a first leading electrolyte along the stacking channel;

replacing at least a portion of the trailing electrolyte with a second leading electrolyte; and

~~automatically~~ applying a second electric field across the first leading electrolyte, the components and the second leading electrolyte when at least a portion of said sample enters said separation channel whereby the components are separated by electrophoretic mobilities along the separation channel.

Claim 23. (original) The method of claim 22 wherein the stacking channel and the separation channel are portions of a main channel.

Claim 24. (original) The method of claim 23 wherein said electric fields are applied by positioning and activating electrodes in reservoirs that are in fluid communication with said main channel.

Claim 25. (original) The method of claim 24 wherein the electrodes are removable.

Claim 26. (original) The method of claim 22 wherein an optical detector is positioned to monitor the separation channel for the sample and the first electric field is modified when the detector senses the sample.

Claim 27. (original) The method of claim 26 said optical detector comprises a single point detector.

Claim 28. (original) The method of claim 26 wherein said optical detector comprises an imaging detector.

Claim 29. (original) The method of claim 28 wherein the imaging detector is a charge coupled device camera.

Claim 30. (new) The system of claim 19 wherein said detector senses at least one of fluorescence, absorbance, refractive index and light scattering from said sample.

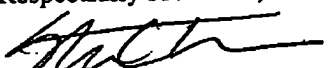
Claim 31. (new) The method of claim 26 wherein said detector senses at least one of fluorescence, absorbance, refractive index and light scattering from said sample.

Claim 32. (new) The method of claim 26 wherein said detector provides input to a control unit operated in closed loop mode.

No new matter has been added by the amendments. Reconsideration is respectfully requested.

If any additional time extensions are required, such time extensions are hereby requested. If any additional fees not submitted with this response are required, please take such fees from deposit account **50-2266.**

Respectfully submitted,



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